

BROOKHAVEN NATIONAL LABORATORY

OCCUPATIONAL HEALTH AND SAFETY GUIDE

SANITATION	2.6.0
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I. INTRODUCTION

The purpose of this Guide is to prescribe minimum sanitary requirements. High standards of sanitation must be maintained to ensure the protection of BNL employees and guests from potential health problems. Conditions or activities that might serve as avenues for the spread of contamination and disease must be eliminated by the use of established hygienic principles.

II. SCOPE

This Guide provides information designed to protect BNL personnel against health and safety hazards associated with unsanitary conditions. Sanitary considerations at food preparation facilities, toilet and waste disposal facilities, recreational facilities, and the general work area are discussed, as well as cleanliness of food service personnel and equipment, and vermin control. Measures for the control of toxic materials are considered to be outside the scope of this Guide.

III. DEFINITIONS

Chemical closet is a toilet facility where the waste is not washed to a sanitary sewer but is collected in a container charged with a chemical solution for the purpose of disinfecting and deodorizing the contents.

Food **service** facilities are commercial sources of food or beverages. These include, but are not limited to, the cafeteria, Brookhaven Center, vending machines area 911, the hospital, and the mobile snack vehicle.

Garbage is any waste from the preparation, cooking, and serving of food.

Potable water is water which meets the quality standards prescribed in the EPA National Interim Primary Drinking Water Regulations (40 CFR 141; 40 FR 59565, December 24, 1975; Amended February 19, 1988) and Chapter 1 State Sanitary Code Part 5, Drinking Water Supplies, Statutory Authority; Public Health Law 225 Subpart 5-1, Public Water Supplies, Amended Jan., 1989.

Potentially hazardous food refers to any food which consists, in whole or in part, of milk or milk products, eggs, meat, poultry, fish, shellfish, edible crustacea, or other ingredients including synthetic ingredients capable of supporting growth of infectious or toxigenic microorganisms.

Refuse is nontoxic material which is discarded for disposal.

Sanitary condition is that physical condition necessary to prevent the incidence and spread of disease.

Sanitization is any effective bactericidal treatment of clean surfaces of equipment and utensils by a process which destroys microorganisms, including pathogens.

IV. RESPONSIBILITY

A. Department Chairman/Division Heads are responsible for ensuring implementation of this Guide.

B. Line Supervisors are responsible for the direct implementation of the provisions of this Guide.

C. Employees are responsible for conforming to good hygienic practices.

D. Plant Engineering is responsible for the maintenance of sanitary conditions in all areas under its jurisdiction. Specifically, Plant Engineering shall implement an effective program including, but not limited to, the following:

1. vermin and insect control for enclosed work areas,
2. sewerage disposal,
3. potable water distribution, and
4. the maintenance of sanitary water quality in the swimming pool.
5. potable water analysis as required in Section V(A)(5)(a)(ii).

E. Safety and Environmental Protection Division is responsible for assisting in the implementation of this Guide and the audit for compliance.

F. Staff Service Division is responsible for ensuring the following:

1. The contract between BNL and the food service company includes provisions for adherence to this Guide.
2. The manager of the food service facility is responsible that the people under their supervision are in good health as outlined in section V.C.3.

G. The Personnel Division is responsible for ensuring that the safety and health of bathers in the swimming pool are maintained. Specifically, the lifeguard is responsible for implementation of section V.D.2 of this guide.

V. REQUIREMENTS

A. General.

1. Housekeeping. All buildings and grounds shall be kept clean and orderly and in a sanitary condition.
2. Waste disposal.

(a) Waste disposal containers.

(i) Receptacles constructed of smooth, corrosion-resistant, and easily cleanable or disposable materials should be provided and used for the disposal of waste food. They shall be emptied after lunch if used, and shall be maintained in a clean and sanitary condition. Garbage should be placed in garbage receptacles rather than waste receptacles. Waste baskets should be emptied after lunch to prevent lunch residues from decomposing overnight.

(ii) All garbage and refuse containing food wastes shall prior to disposal, be kept in durable, leakproof, nonabsorbent containers or compactors which shall be kept covered with tight fitting lids when fitted or stored, or not in continuous use.

(b) All sweepings, solid or liquid waste shall be removed in such a manner as to avoid creating a menace to health and as often as necessary or appropriate to maintain the place of employment in a safe and sanitary condition. Dry sweeping shall be limited to the collection of nontoxic or nonhazardous dust. Floors and working surfaces should be kept free of water, grease, oil, and other waste.

(c) Stored garbage shall be inaccessible to insects and rodents. Outside storage of plastic bags is prohibited unless they are stored in nonabsorbent, leakproof containers with tight-fitting lids.

(d) Outside garbage storage areas shall be clean and adequate in size. Containers, dumpsters, and compactors shall be stored on a smooth concrete slab or other relatively nonabsorbent surface, maintained in good repair, and kept clean.

3. Vermin control. Every enclosed work place shall be constructed, equipped, and maintained to discourage the entrance or harborage of rodents and insects. Wherever their presence is detected, a continuing and effective extermination program shall be instituted. Areas infested with insects or rodents should be reported to Plant Engineering.

(a) The insecticide shall not be harmful to humans under conditions of use and shall be used only as directed by the manufacturer. (See Pesticides Guide, Section 2.1.3)

(b) The spraying of insecticide shall be prohibited in food preparation and service areas while food is being processed, prepared and/or served or where unprotected food or clean utensils and containers are displayed or stored.

4. Eating areas.

(a) In every establishment where there is exposure to toxic or hazardous materials, a separate lunch room shall be maintained unless it is arranged for the employees to lunch away from the premises. The following table lists the required room size in square feet per person as a function of the number of people using the room at one time.

<u>No. of Persons</u>	<u>Square Feet/Person</u>
25 and less	13
26-74	12
75-149	11
150 and Over	10

No food shall be stored or eaten where any toxic materials are present that may contaminate the food in quantities that may be injurious to health.

(b) Food preparation areas, such as area kitchens and coffee or tea carts, shall be kept clean.

(c) No employee shall be allowed to consume food or beverages in a toilet room, or in any areas which contain toxic agents.

(d) Food and beverages shall be stored only in refrigerators or storage areas which are designed to exclude contact with toxic agents.

(e) Laboratory glassware, utensils, or other equipment shall not be used for food or beverage storage, preparation or service.

5. Water supply.

(a) Potable water.

(i) An adequate supply of potable water shall be provided in all places of employment. Drinking water should be made available within 200 feet of any location at which employees are regularly engaged in work. Under certain conditions where the work area is large and the number of employees is small, these requirements may be met by the use of portable containers of drinking water.

- (ii) Plant Engineering shall collect and analyze water samples periodically to ensure **compliance** with the EPA National Interim Primary Drinking Water Regulations (40 CFR 141; 40 FR 59565, December 24, 1975; Amended February 19, 1988) and Chapter 1 State Sanitary Code Part 5, Drinking Water Supplies, Statutory Authority; Public Health Law 225 Subpart 5-1, Public Water Supplies, Amended January, 1989.
- (b) Non-potable water.
 - (i) Outlets for non-potable water shall be posted to clearly indicate that the water is unsafe for drinking, washing, and cooking purposes.
 - (ii) Provisions shall be made to isolate potable water from non-potable water by physical separation of the plumbing systems or by the installation of backflow prevention devices.
- (c) New water distribution systems or modification to existing water distribution systems shall be constructed so that they do not compromise sanitary conditions in the existing facilities, or create hazardous conditions with respect to the existing facilities.
- (d) Nonpotable water shall not be used for bathing or washing any portion of persons, clothes or dishes.

B. Sanitary facilities.

- 1. Toilet facilities.
 - (a) Every place of employment shall be provided with adequate toilet facilities which are separate for each sex and are readily accessible to all employees.
 - (b) Toilet facilities shall be provided for each sex according to the following table. The number to be provided for each sex shall in every case be based on the maximum number of persons of that sex employed at any one time at work on the premises for which the facilities are furnished. When persons other than employees are permitted the use of toilet facilities on the premises, a reasonable allowance shall be made for such other persons in estimating the minimum number of toilet facilities required.

<u>Number of Persons</u>	<u>Minimum Number of Facilities</u>
1 to 9	1
10 to 24	2
25 to 49	3
50 to 74	4
75 to 100	5
Over 100	5 + 1 for each additional 30 persons

Where 10 or more men are employed, urinals may be provided. The formula for doing so is as follows: One toilet facility less than the number specified in the foregoing may be provided for each urinal, except that the number of toilet facilities in such cases may not be reduced to less than two-thirds of the number specified in the foregoing.

Where ten persons or less are employed, a single toilet room for both sexes can be provided if provision for complete privacy is made.

(c) The toilet rooms shall be completely enclosed and shall have tight fitting, self-closing doors. Each toilet shall occupy a separate compartment which should be equipped with a door and a latch. Mechanical ventilation, constructed, operated, and maintained in accordance with good practice, shall be provided in all toilet rooms.

(d) The toilet room and fixtures shall be kept clean and in good repair and free from objectionable odors.

(e) An adequate supply of toilet paper shall be provided at each toilet.

(f) Easily cleanable receptacles shall be provided for waste paper and refuse. Covered receptacles shall be kept in all toilet rooms used by women.

(g) Adequate toilet and handwashing facilities shall be provided for patrons where food is served for on-premises consumption.

2. Hand-washing facilities. Each place of employment shall be provided with adequate, conveniently located hand-washing facilities for its employees, including a lavatory or lavatories equipped with hot and cold or tempered running water, dispensed with a mixing faucet, hand-cleansing soap or detergent, and sanitary towels or other hand-drying devices. Such facilities shall be kept clean and in good repair.

3. Shower facilities. Employees who work in areas where their skin or clothing comes in contact with poisonous, infectious, or irritating materials, or to carcinogens, mutagens, and teratogens, shall be provided with shower facilities. Shower facilities shall be kept in a clean and sanitary condition.

4. Change rooms and lockers.

(a) Separate change rooms equipped with individual clothes lockers shall be provided for each sex wherever it is the practice to change from street clothes. Where change rooms will be occupied by no more than one person at a time, and can be locked from the inside, separate change rooms for each sex need not be provided.

(b) In a food establishment, the change rooms shall be located outside of the food preparation, storage, and serving areas, and the utensil washing and storage areas.

(c) Lockers and change rooms shall be kept clean.

(d) Where employees' work clothes are exposed to contamination with poisonous, infectious, or irritating materials, or to carcinogens, mutagens, or teratogens, facilities should be provided in the change rooms to prevent the contact of street and work clothes.

(e) Where the process in which the worker is engaged is such that his working clothes become wet or have to be washed between shifts, provision shall be made to insure that such clothing is dry before re-use.

C. Food service facilities.

1. Housekeeping.

(a) Cleaning operations shall be conducted in such a manner as to minimize contamination of food and food-contact surfaces.

(b) With the exception of guide dogs accompanying blind persons in the dining area, no animals shall be allowed in any area of food service facilities.

(c) Any receptacle used for garbage shall be equipped with a solid tight fitting cover unless it can be maintained in a sanitary condition without a cover.

2. Food.

(a) Food supplies. All food shall be clean, free of spoilage, free from contamination and misbranding, and safe for human consumption.

(b) Food protection. All food while being stored, prepared, displayed, served, or sold at food-service facilities, or during transportation between such establishments, shall be protected from contamination.

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- (i) All perishable food shall be stored at temperatures which will provide protection against spoilage. Food shall be maintained at safe temperatures (42°F or below, or 140°F or above), except during necessary periods of preparation and service.
- (ii) Frozen food shall be maintained at 0°F or below except when being thawed for preparation and use.
- (iii) Stuffings, poultry, stuffed meats, and stuffed poultry shall be heated so that the entire mass attains a minimum temperature of 165°F. Pork and pork products shall be cooked to a minimum temperature of 150°F. Rare roast beef or beef steak shall be heated to a minimum temperature of 130°F.
- (iv) Pre-cooked refrigerated potentially hazardous food that is to be reheated shall be heated rapidly at 165°F or above and held at 140°F until served.
- (v) Custard-filled, cream-filled pastries, pies or other bakery products shall, unless served immediately following preparation, be refrigerated at or below 42°F until served.
- (vi) Raw fruits and vegetables shall be washed in potable water before being used or served.

3. Personnel.

- (a) Health and disease controls. No person while knowingly affected with any disease in a communicable form or while a carrier of such disease shall work in any area of a food-service establishment in any capacity in which there is a likelihood of such person contaminating food or food-contact surfaces with pathogenic organisms, or transmitting disease to other individuals.
- (b) Cleanliness. All employees shall wear clean outer garments, and a hairnet or other headpiece to restrain the hair while preparing and serving food. They shall maintain a high degree of personal cleanliness, refrain from smoking while working in food preparation, service, or clean-up areas, and conform to hygienic practices. The use of tobacco shall be restricted to designated areas where no contamination hazard will result. Employees shall wash their hands thoroughly before starting work, and after using the toilet, smoking, sneezing, coughing, eating, drinking, or otherwise soiling their hands before returning to work. Employee's handwashing signs shall be posted in each toilet room area. Employees shall keep fingernails clean and neatly trimmed. They shall not wear excessive cosmetics or excessive jewelry while engaged in food preparation or service.
- (c) Medical exam. The operator, manager, or person in charge of a food establishment shall not employ or permit any person affected with any disease transmitted through food, water, or utensils or who refuses a physical examination when requested by the Laboratory to handle food. Any person suspected of being a carrier of such disease shall not handle food until his medical status can be clarified.

4. Food equipment and utensils.

- (a) Sanitary design, construction, and installation of equipment and utensils.
 - (i) All equipment and utensils shall be so designed and of such material and workmanship as to be smooth, easily cleanable, and durable, and shall be in good repair. The food-contact surfaces of such equipment and utensils shall, in addition, be easily accessible for cleaning, non-toxic, corrosion resistant, and relatively nonabsorbent.
 - (ii) All equipment shall be so installed and maintained as to facilitate cleaning and shall conform with state and local plumbing, electrical, and fire protection regulations.
 - (iii) Single-service articles shall be made from nontoxic materials.
- (b) Cleanliness of equipment and utensils.
 - (i) All eating and drinking utensils shall be thoroughly cleaned and sanitized after each usage.

- (ii) All kitchenware and food-contact surfaces of equipment, exclusive of cooking surfaces of equipment, used in the preparation or serving of food or drink, and all food-storage utensils, shall be thoroughly cleaned after each use. Cooking surfaces of equipment shall be cleaned at the end of each work day, or more often if necessary. Microwave oven cavities, doors, and seals shall be kept clean.
- (iii) Non-food contact surfaces of equipment shall be cleaned at such intervals as to be free of accumulations of dust, dirt, food particles, and other debris.
- (iv) After cleaning and until use, all food-contact surfaces of equipment and utensils shall be so stored and handled as to be protected from contamination.
- (v) All single-service articles shall be stored, handled, and dispensed in a sanitary manner, and shall be used only once.
- (vi) The use of wiping cloths shall be restricted. Cloths used by food service personnel for wiping spills on food contact surfaces shall be clean, and such cloths shall be used for no other purpose. Cloths used for wiping counter and table surfaces shall be clean and used for no other purpose. Such cloths shall be rinsed frequently in a sanitizing solution. The use of sponges for cleaning food contact surfaces is prohibited.
- (c) Adequate mechanical dishwashing facilities shall be provided and conveniently located in the cafeteria and Brookhaven Center and hospital where food is served for on-premises consumption and wherever reusable eating and drinking utensils are used.
 - (i) Dishwashing machines shall be properly installed and maintained in good repair.
 - (ii) Conveyors and cycles in dishwashing machines shall be **accurately** regulated, as outlined in the manufacturer's specifications, to assure proper washing, rinsing and sanitizing.
 - (iii) The dishwashing machine shall be thoroughly cleaned following usage. During operation, the machine shall be properly maintained in a satisfactory condition. Prior to cleaning, equipment and utensils shall be preflushed or prescraped and when necessary presoaked to remove gross food particles and soil. Following preflushing, prescraping or presoaking, equipment and utensils shall be placed in racks, trays, baskets, or on conveyors in such a manner that food contact surfaces are subject to unobstructed application of wash and rinse waters, and to permit free draining.
 - (iv) When sanitizing with hot water, wash and pumped rinse waters shall be kept clean. The following water temperatures shall be maintained:

Single tank conveyor

Wash temperature 160°F

Final rinse temperature 180- 195°F

Multiple tank conveyor

Wash temperature 150°F

Pumped rinse temperature 160°F

Final rinse temperature 180- 195°F

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- (v) Food contact surfaces of cleaned and sanitized equipment and utensils shall be handled in such a manner so as to be protected from contamination.
- (d) A three compartment sink shall be used whenever cleaning and sanitization of equipment and utensils are conducted manually. The sinks shall be of adequate dimensions to permit the complete immersion of the largest items. Each sink compartment shall be supplied with potable hot and cold running water.
 - (i) The sinks shall be cleaned thoroughly prior to usage. Equipment and utensils shall be prescraped and, when necessary, presoaked to remove gross food particles and soil.
 - (ii) Equipment and utensils shall be washed in hot soap solution (minimum 140°F) and then rinsed in clean warm water in the second compartment. The rinse water shall be changed regularly to make the sanitization process more effective.
 - (iii) In the third compartment the washed and rinsed equipment and utensils shall be sanitized by immersion for 1/2 minute in either hot water of at least 170°F or with an approved chemical sanitizer following the manufacturer's specifications. If chemicals are used suitable chemical field test kits must be present and used to assure adequate chemical concentration.
 - (iv) Cleaned and sanitized utensils and equipment shall be air dried.

5. Storage of food.

- (a) Food containers shall be stored above the floor on clean racks, dollies, or other clean surfaces as to be protected from splash and other contamination.
- (b) Potentially hazardous foods, such as broths, gravies, high protein salads, and cream-type dressings, shall be stored in shallow pans or small containers when refrigerated.
- (c) Raw or prepared foods shall not be placed directly on refrigerator shelves.

6. Service and display of food.

- (a) Food or drink shall be protected against contamination from consumers and other sources by effective, easily cleanable cabinets, display cases or other protective equipment. Self-service openings shall be designed to protect food or drink from unnecessary manual contact by customers. The quantity of food displayed shall be for immediate needs only.
- (b) Employees shall use long handled tongs, forks, spoons, spatulas, scoops, etc. to minimize manual contact with food or drink. Similar instruments shall be provided for self-service customer use.
- (c) Ice for consumer use shall be made from potable water and dispensed from an approved ice-dispensing machine.
- (d) Sugar, condiments, seasonings, and dressings for self-service usage shall be provided in approved closed dispensers or in individual single-service packages.
- (e) Unused food that has been served to a customer may not be served again except that wrapped or otherwise protected wholesome nonpotentially hazardous food may be reserved.

7. Poisonous and toxic materials.

- (a) Only poisonous and toxic materials, lawfully permitted under federal, state, and local regulations, as are required to maintain sanitary conditions, including pest control and sanitization purposes, may be stored or used in food-service establishments.
- (b) Containers of poisonous and toxic materials used for cleaning and sanitizing shall be distinctively labeled for easy identification as to contents. Such materials shall be used only in a manner that will not contaminate food, equipment, or utensils or constitute a hazard to employees or consumers.

(c) When not in use, poisonous and toxic materials shall be stored in cabinets which are used for no other purpose, or in a place which is outside the food storage, preparation, display, and cleaned equipment and utensils storage areas. Bactericides and cleaning compounds shall not be stored in the same cabinet or area of the room with insecticides, rodenticides, or other poisonous materials.

(d) Bactericides, cleaning compounds, or other compounds, intended for use on food-contact surfaces, shall not be used in such manner as to leave a toxic residue on such surfaces, nor to constitute a hazard to employees. Phenolic compounds shall not be used for sanitizing utensils or equipment.

(e) The storage of personal medications shall be restricted from food preparation and service areas. First-aid supplies shall be restricted to designated locations.

D. Swimming pool.

1. Maintenance of purification equipment. The sanitary and aesthetic quality of the water in the swimming pool shall be maintained by continuous and effective recirculation, disinfection, and filtration over a 24 hour period.

(a) The recirculation system shall be designed to replace the water at 1/6 to 1/8 pool volume per hour.

(b) Measurement of pH and residual chlorine content shall be taken by Plant Engineering as often as necessary to ensure acceptable water quality. The following criteria should be met.

(i) The pH should be maintained between 7.2 and 7.8.

(ii) The residual chlorine content should be maintained between **0.6** and 2.0 mg/L.

(c) Hair catcher strainers shall be cleaned daily or more frequently if necessary.

(d) Pool walls and floor shall be kept clean and free from algae. The pool shall be vacuumed at least daily when in use.

(e) Chemical feed equipment shall be dismantled at least once a year to inspect and replace worn parts.

(f) The filter system shall be provided with a flow rate indicator for recirculation and backwash measurement, an air-release valve on the top of each filter shell, pressure gauges on influent and effluent lines and on either sides of hair and lint catchers, two baskets for the hair catcher, and a sight glass on the waste-discharge line. The filters shall be backwashed and drained yearly so that the sand may be inspected and replaced if necessary.

2. Cleanliness of bathers.

(a) Persons having infectious skin diseases, or other infections cannot be permitted to use the pool until well.

(b) A warm water and soap shower shall be taken by all bathers before entering the pool to remove perspiration, dirt, and dust from their bodies.

(c) Spectators shall not be permitted inside the pool enclosure since the dirt on their feet may be tracked into the pool.

(d) Food and beverages shall not be permitted in the pool area.